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A late Pliocene–early Pleistocene, inner-shelf, subtropical, seagrass-dominated carbonate: Roe Calcarenite, Great Australian Bight, Western Australia

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ABSTRACT

The Roe Calcarenite is a 2–3-m-thick, mostly unlithified carbonate that accumulated in shallow water at the center of the Great Australian Bight on a marine erosional surface during the late Pliocene–early Pleistocene. The grainy deposits are profusely rich in whole mollusks and the large symbiont-bearing foraminifer *Marginopora vertebralis*. Articulated coralline algal rods, whole discorbid, rotaliid, and miliolid foraminifers, and innumerable fragments of *M. vertebralis* dominate sand-sized particles. A particularly conspicuous miliolid is the encrusting form *Nubecularia* sp. The unit is divided into two informal members. We interpret the lower member, an areally similar mollusk-rich facies, as a record of deposition during relative sea-level rise on shallow nearshore grass beds, probably dominated by an *Amphibolis* community living in an overall subtropical setting. The more areally diverse upper member comprises three facies, which we envisage as having accumulated during regression in a series of adjacent intertidal sand flat and beach or supratidal microbial-lacustrine environments. These Plio–Pleistocene deposits have many parallels with Holocene grass-bank facies in western and southern Australia and likely represent accumulation in a slightly warmer ocean than today wherein the depositional setting was heated by solar radiation. This unit is an important conceptual bridge into the older Cenozoic rock record.